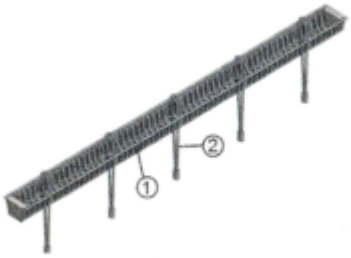
PRODUCT DECLARATION BY THE CONCRETE ASSOCIATION OF FINLAND
TYPE 5B - EC 2 FASTENING ITEM
number
110

Representative of the fastening item in Finland:	**Peikko Finland Oy** PL 104 (visiting address Voimakatu 3), 15101 LAHTI
Manufacturer of the fastening item:	**Peikko Group Oy**
Type and identification of the fastening item:	**WILORA® 20 and WILORA® 50 Connecting Rails**
Figure of the fastening item	
Function principle of the fastening item:	WILORA® Connecting Rail is a wire loop connection system for forming joints between precast wall-to-wall or wall-to-column connections. After the joint is grouted the design allows the transfer of tensile load, transverse shear load, vertical shear load, and combinations of these loads. WILORA® Connecting Rails are manufactured from profiled steel rail (1) with five wireloops (2).

DECISION OF SUOMEN BETONIYHDISTYS ry (THE CONCRETE ASSOCIATION OF FINLAND)

The Concrete Association of Finland has processed this product declaration and approved it basing on the available documentation. The declaration provides sufficient explanation of the properties and matters related to the usage of the fastening item in concrete structures, provided that the design is based on Eurocode standards and relevant national amendments.

When the fastening item is used, the following must be considered additionally to the product declaration:

1. A valid product declaration for the fastening item, as granted by the Concrete Association of Finland, must be available on the manufacturing site.
2. A product declaration for the fastening item, as granted by the Concrete Association of Finland, and the Installation Instructions manual must be available on the construction site.
3. Correct use of the fastening item.

This product declaration is valid until 16.6.2025 unless no other reasons for withdrawal would be presented.

This declaration is made in two original copies, one of which is stored at the office of the Concrete Association of Finland.

Helsinki 24.8.2020 p:nä 2020

Suomen Betoniyhdistys ry.

Matti Pentti	Mirva Vuori
Chairman	Managing Director

INFORMATION PROVIDED BY THE MANUFACTURER OR REPRESENTATIVE OF THE FASTENING ITEM:

1. Operation of the fastening item

WILORA® Connecting Rail is designed to transfer vertical shear forces ($V_{Ed,\parallel}$), transverse shear forces ($V_{Ed,\perp}$), tensile forces (N_{Ed}), and their combinations in wall-to-wall or wall-to-column connections. They are used to create the rough surface of the wall joint for transferring shear forces (either vertical or transverse).
Grouted rough surface of the joint, along with the crossing wire loops, form a strut and tie model in the connection. Grouting serves as a concrete strut transferring compression and wire loops work as ties transferring tension in the joint.

2. Manufacturing of the fastening item

21 Components:
Box
Wires
Steel ferrules
Covering tape or plastic cover

See manufacturing drawings, annex 2.

22 Manufacturing method
The Rails are manufactured by profiling from hot dip galvanized sheet. Wires are cut with mechanical cutter and bended to loops. The loop is guided through the holes in the bottom of the rail. Wire loop ends are fixed with a steel ferrule. Wire loops are bent and pressed inside the rail. Box is sealed with a tape or a plastic cover.

23 Welding
No welds.

3. Dimensions, tolerances, and coating of fastening parts

31 Dimensions:
Outer dimensions are introduced in the technical manual.

32 Tolerances
Wire length: ±2 mm
Rail length: ±3 mm

33 Coatings
The rail is manufactured of hot dip galvanized sheet metal.

4. Properties of the fastening item's materials (standards, strength values, composition, weldability)

Component	**Materials:**	**Standards:**
Rail; 0,7 mm hot dip galvanized sheet metal	SGCC	JIS G 3302-2010
Steel wire with a stiff core, 1770 N/mm2	6x19+SCW	GB/T 20118-2006 EN 12385-2
Steel ferrule	20#	GB/T 8162-2018 EN 13411-3
Cover tape or plastic cover		

5. Labeling, packaging methods, and storage of the fastening items

Labeling: To the connecting loop box is stamped:

- The name of manufacturer
- Product name and type
- Batch number

Packaging:

- The products are packed in boxes marked with product identification.

Storing:

- The products are stored indoors.

6. Requirements regulating the concrete structures

61 Strength class and special characteristics of concrete and grouting mortar:
The given capacities have been calculated with the minimum concrete grade of C30/37 and the grouting material at least grade C45/55. If using a lower grade concrete, the capacity must be reduced with factors given in the Technical manual.

62 Requirements for aggregates
The aggregate quality must be in accordance with the standard SFS-EN 12620.

63 Minimum requirements for edge and center distances
Technical Manual of WILORA® Connecting Rail Section 1.2.2Thickness of the precast panel.

64 Nominal concrete cover
The thickness of the concrete cover is determined by the required fire resistance time, environmental exposure class, and planned service life in accordance with standards SFS-EN 206, SFS-EN 1992-1-1-2 and the national annex of Finland along with section 2.4 Fire resistance in the Technical Manual.

7. Resistances

Resistances are introduced in the Technical manual section 2 Resistances.

8. Installation of the fastening item

WILORA® Connecting Rails are fixed to wooden mold by nailing gluing or double-sided tape. After casting the protective tape or cover is removed, wire loops are bent to open position.

9. Special instructions for ensuring an adequate fastening

Wire loops must be perpendicular to the rail when concreting.

10. Structural static calculations (Annex number, name of the calculation, and date)

Annex 3, Static Calculation WILORA EN + NA of Finland, date 5.5.2020.

11. Acceptance tests made for the fastening item (Annex number, test body, test report number, and date of report)

Annex 4, BOKU, Test Report No. 875-20-005, date 24.02.2020.

12. Name and publication date of the installation instructions from the manufacturer or representative (Annex 1)

WILORA® Connecting Rail, Technical Manual, 10/2020.

13. Quality control

Peikko Finland Oy delivers content of quality control to Concrete Association of Finland. Peikko Finland Oy has given permission to deliver quality control records to Concrete Association of Finland.

14. Other information

15. Additional information, not public (annex number, title, and date)

Annex 2List of manufacturing drawings, manufacturing drawings, dated 9.6.2020
Annex 3List of manufacturing drawings, manufacturing drawings, dated 9.6.2020
Annex 4List of manufacturing drawings, manufacturing drawings, dated 9.6.2020
Annex 5List of manufacturing drawings, manufacturing drawings, dated 9.6.2020
Annex 6List of manufacturing drawings, manufacturing drawings, dated 9.6.2020
Annex 7List of manufacturing drawings, manufacturing drawings, dated 9.6.2020

16. Annexes (annex number, title, and date)

Annex 1WILORA® Connecting Rail, Technical Manual, 10/2020

We hereby declare that the information that we have provided is correct

Lahti July 7th, 2020

Signature

Name (printed) Markus Junes, Peikko Group Oy

This product declaration can be withdrawn at the discretion of the Concrete Association of Finland. Reasons for withdrawal may include:

- The information provided when the application for the product declaration was made is shown to be incorrect
- An unreasonable decrease in quality or repeated minor decreases in quality are observed in the product Subject to this product declaration